REMARKS

As a result of this amendment, claims 39-41, 44-56, 88-89, and 93-116 are now pending in this application. Of these, claims 39-41, 45, and 47-56 stand rejected under §102(e); claim 44, 46, 56, and 88-89 stand rejected under §103; and claims 93-116, which are newly added with this amendment, stand unrejected.

Applicant reserves all applicable rights not asserted in or with this response, including, for example, the right to rebut tacit and explicit characterizations of one or more cited references, the right to rebut asserted combinations and motives for combinations, and the right to swear behind one or more cited references. Applicant makes no admissions regarding the status of any art of record as prior art.

Information Disclosure Statement

Applicant respectfully requests that the Examiner acknowledge consideration of the references identified on the 1449 Form submitted with the Information Disclosure Statement filed October 10, 2000 by returning an initialed copy of the 1449 Form with the next official communication.

Response to §102 Rejections

Claims 39-41, 45, and 47-56 were rejected under 35 USC §102(e) as being anticipated by Mihara et al. (U.S. 5,561,307).

In response, applicant submits that the claims have been amended to more readily distinguish from Mihara. Specifically, the amended claims, which find support at least in Figure 9B, now recite that the second portion or the diffusion barrier portion does not extend above the upper surface of the insulative layer.

In contrast, Mihara layer 22 (and its other similarly situated layers) extend above its insulative layer 24.

Accordingly, applicant respectfully requests that the §102(e) rejections be withdrawn.

Response to §103 Rejections

Claims 44, 46, 56, and 88-89 were rejected under 35 USC §103(a) as unpatentable over Mihara et al. (U.S. 5,561,307). In response, applicant submits that the claims have been amended to more readily distinguish from Mihara as noted above, thus rendering the §103 rejection moot.

Conclusion

In view of the amended claims, applicant respectfully requests reconsideration and withdrawal of the rejections. Moreover, applicant invites the Examiner to telephone its patent counsel (612-349-9593) to resolve any new issues that may delay allowance.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

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By their Representatives,

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Date 16 August 2002 By

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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Commissioner of Patents, Washington, D.C. 20231, on this 16th day of August, 2002.

Name Amy Moriarty

Signature

Docket No. 303.434US2
WD # 407329

Micron Ref. No. 02-0501.03

Clean Version of Pending Claims

METHOD FOR FORMING A STORAGE CELL CAPACITOR COMPATIBLE WITH HIGH DIELECTRIC CONSTANT MATERIALS
Applicant: Pierre C. Fazan et al.
Serial No.: 09/489,954

Claims 39-41, 44-56, and 88-89 and 93-116, as of August 16, 2002 (date of Response to Office Action filed).

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39. (Amended) An electrode comprising:

a) a first portion formed in an insulative layer having an upper surface;

b) a second portion overlying the first portion, wherein said insulative layer surrounds a sidewall of said second portion and said second portion does not extend above the upper surface; and

c) a third portion overlying said second portion and, extending above and below said upper surface of said insulative layer, and including a recess, wherein said first portion and said second portion are different materials.

40. The electrode as specified in Claim 39, wherein said second portion and said third portion are different materials.

41. The electrode as specified in Claim 40, wherein the said first portion and the said third portion are different materials.

44. The electrode as specified in Claim 39, wherein said first portion is a silicon contact.

45. The electrode as specified in Claim 39, wherein said second portion is a diffusion barrier layer prohibiting diffusion of atoms between said first and said third portions.

46. The electrode as specified in Claim 39, wherein said third portion is an oxidation resistant layer.

47. The electrode as specified in Claim 39, wherein said insulative layer surrounds a lower sidewall of said third portion.

48. (Amended) A dynamic random access memory device comprising:

an electrode which comprises:

a) a first portion formed in an insulative layer having an upper surface;

b) a second portion overlying the first portion, wherein said insulative layer surrounds a sidewall of said second portion and said second portion does not extend above said upper surface; and

c) a third portion overlying said second portion and, extending above and below said upper surface of said insulative layer, and including a recess, wherein said first portion and said second portion are different materials.

49. The electrode as specified in Claim 48, wherein said second portion and said third portion are different materials.

50. The electrode as specified in Claim 49, wherein said first portion and said third portion are different materials.

51. (Amended) A dynamic random access memory device comprising:

a capacitor which comprises:

a) a first portion formed in an insulative layer having an upper surface;

b) a second portion overlying the first portion, wherein said insulative layer surrounds a sidewall of said second portion and said second portion does not extend above said upper surface; and

c) a third portion overlying said second portion and, extending above and below said upper surface of said insulative layer, and including a recess, wherein said first portion and said second portion are different materials.

52. The electrode as specified in Claim 51, wherein said second portion and said third portion are different materials.

53. The electrode as specified in Claim 52, wherein said first portion and said third portion are different materials.

54. The dynamic random access memory device as specified in Claim 51, further comprising:

a) a dielectric layer overlying said third portion; and

b) a cell plate electrode overlying said dielectric layer.

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55. The dynamic random access memory device as specified in Claim 51 further comprising a transistor.

56. (Amended) An electrode comprising:

a) a contact formed in an insulative layer having an upper surface;

b) a diffusion barrier portion overlying said contact, said insulative layer surrounding a sidewall of said diffusion barrier portion and said diffusion barrier portion not extending above said upper surface ; and

c) an oxidation resistant portion overlying said diffusion barrier portion and, extending above and below said upper surface of said insulative layer, and including a recess, said diffusion barrier portion configured to inhibit diffusion of atoms between said contact and said oxidation resistant portion.

88. (Amended) An electrode comprising:

a) a first portion formed in an insulative layer having an upper surface;

b) a second portion overlying the first portion, wherein said insulative layer surrounds a sidewall of said second portion and said second portion does not extend above the upper surface; and

c) a third portion overlying said second portion, extending above and below said upper surface of said insulative layer, and including a recess, wherein said first portion and said second portion respectively consist essentially of polysilicon and tantalum.

89. The electrode as specified in Claim 88, wherein said third portion consist essentially of platinum.

93. An electrode comprising:

a) a first portion formed in an insulative layer having an upper surface;

b) a second portion overlying the first portion and having a sidewall substantially flush with the upper surface; and

c) a third portion overlying the second portion, extending above and below the upper surface of the insulative layer, and including a recess, wherein the first portion and the second portion are different materials.

94. The electrode of Claim 93, wherein the second portion and the third portion are different materials.

95. The electrode of Claim 93, wherein the first portion is a silicon contact.

96. The electrode of Claim 93, wherein the second portion is a diffusion barrier layer.

97. The electrode of Claim 93, wherein the third portion is an oxidation resistant layer.

98. The electrode of Claim 93, wherein the insulative layer surrounds a sidewall of the third portion.

99. The electrode of Claim 93, wherein the insulative layer surrounds the sidewall of the second portion.

100. A dynamic random access memory device comprising:
an electrode which comprises:
a) a first portion formed in an insulative layer having an upper surface;
b) a second portion overlying the first portion and having a sidewall substantially flush with the upper surface; and
c) a third portion overlying the second portion and, extending above and below the upper surface of the insulative layer, and including a recess, wherein the first portion and the second portion are different materials.

101. The electrode of Claim 100, wherein the second portion and the third portion are different materials.

102. The electrode of Claim 100, wherein the first portion and the third portion are different materials.

103. The electrode of Claim 100, wherein the first portion contacts the second portion, and the second portion contacts the third portion.

104. The electrode of Claim 100, wherein the insulative layer surrounds the sidewall of the second portion.

105. A dynamic random access memory device comprising:

a capacitor which comprises:

a) a first portion formed in an insulative layer having an upper surface;

b) a second portion overlying the first portion and having a sidewall substantially flush with the upper surface; and

c) a third portion overlying the second portion and, extending above and below the upper surface of the insulative layer, and including a recess, wherein the first portion and the second portion are different materials.

106. The electrode of Claim 105, wherein the second portion and the third portion are different materials.

107. The electrode of Claim 105, wherein the first portion and the third portion are different materials.

108. The dynamic random access memory device as specified in Claim 105, further comprising:

a) a dielectric layer overlying the third portion; and

b) a cell plate electrode overlying the dielectric layer.

109. The dynamic random access memory device as specified in Claim 105 further comprising a transistor.

110. The electrode of Claim 105, wherein the first portion contacts the second portion, and the second portion contacts the third portion.

111. The electrode of Claim 105, wherein the insulative layer surrounds the sidewall of the second portion.

112. An electrode comprising:

a) a contact formed in an insulative layer having an upper surface;

b) a diffusion barrier portion overlying the contact and having a sidewall substantially flush with the upper surface; and

c) an oxidation resistant portion overlying the diffusion barrier portion and, extending above and below the upper surface, and including a recess, the diffusion barrier portion configured to inhibit diffusion of atoms between the contact and the oxidation resistant portion.

113. The electrode of Claim 112, wherein the contact contacts the diffusion barrier, and the diffusion barrier portion contacts the oxidation resistant portion.

114. An electrode comprising:

a) a first portion formed in an insulative layer having an upper surface;

b) a second portion overlying the first portion and having a sidewall substantially flush with the upper surface;

c) a third portion overlying the second portion, extending above and below the upper surface, and including a recess, wherein the first portion and the second portion respectively consist essentially of polysilicon and tantalum.

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115. The electrode as specified in Claim 114, wherein the third portion consist essentially of platinum.

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116. The electrode of Claim 114, wherein the first portion contacts the second portion, and the second portion contacts the third portion.